

INU-15-015 Questions/Responses

1). Q - What form factor is the requirement of the chassis. 3U, 4U, 6U etc.

A – prefer 2U for each compute head and 4U for JBOD trays, but not a fixed requirement.

2). Q - Can we offer multiple chassis storage solution, meaning one main controller unit and multiple expansion storage chassis ?

A – yes. With requirement of 425TB+ of capacity, we anticipate 100's of drives will be required. Not expecting all to be housed in a single chassis.

3). Q - In the system requirement there is a section that mentions "Hardware solution must be certified to run Oracle Solaris 11.2 OS". Does this mean that the storage solution will be running Solaris to manage the storage, or the storage is a NAS with it's own OS that has to be compatible with Solaris 11.2?

A – the former. Storage solution will be running Solaris OS (ZFS) to manage the storage. There are other hints about SLOG and L2ARC. Internal requirement to support AFP precludes using a canned NAS appliance, so we must build a traditional fileserver.

4). Q - SOW is a little ambiguous. Is NASA looking for block storage, Network attached storage or a combination of both?

A – Solution will be an HA clustered NFS/AFP fileserver running Oracle Solaris OS and ZFS to manage storage pool(s). Future enhancements may include serving block/SAN, but initial deployment will be serving files via NFS and AFP.

5). Q - What operating system (OS) is the requirement for the Storage, solicitation states, Solaris 11.2 OS, what about a compatible OS, or the hardware has to be certified to run the Solaris 11.2 OS?

A – Oracle Solaris is preferred, but not required. A Nexenta solution would be desired, but out of reach for the budget. Any FOSS based (e.g. illumos) solution will be evaluated fairly on technical merit.

6). Q - Is this RFQ specifically asking for storage, or is it asking for a converged type architecture, please give example?

A – unable to give a specific vendor example but conceptually this is a "nexenta" style solution without the nexenta software.

7). Q - Does storage have to be fiber channel only, or is IP based storage allowed as well?

A – solution will be IP-based NFS / AFP fileserver. Potential for future FC based block services.

8). Q - Is storage going to be a stand-alone solution, or is it part of a larger video content creation, cataloging, and archiving solution. If so, please give example, what role does the storage play?

A – initial deployment will provide file services only via NFS / AFP.

9). Q - Are you looking for an open source storage architecture, role your own, you will provide your own OS/file system?

A – yes. Essentially this is a role-your-own generic HA-clustered NFS fileserver also supporting AFP services via FOSS packages.

10). Q - If solution is video specific related, what type of performance and resolution capabilities will you need?

A – file service only. Content creation/editing performed on clients only at this time.

11). Q - **Hardware solution must be certified to run Oracle Solaris 11.2 OS** - Does this requirement refer to the OS running on the storage appliance or the client? Is there a security requirement that this requirement fulfills, if so what? Most storage appliances are treated as black boxes and only the manufacturers support staff have access to the OS, just trying to figure out why this requirement is stated.

A – non-exhaustive search prior to solicitation found no turn-key black-box appliances which meet all internal requirements (e.g. AFP support). Decided roll-your-own general purpose compute configured as fileserver providing the flexibility to support add-on services to be the appropriate solution.

12). Q - **Must be certified by Oracle to support Solaris 11.2 Operating System.** - Oracle doesn't certify none Oracle storage platforms. Is there a security requirement that this requirement meets

A – refer to Oracle HCL and HCTS.

13). Q - **Oracle certification documentation must be provided.** - Oracle doesn't certify none Oracle storage platforms, therefore this question seems to limit the buyer from consider anything other then Oracle storage solutions. If this is the case then I wonder why not name brand justify this purchase.

A – refer to Oracle HCL and HCTS.

14). Q - **Equipment must support dual-port SAS3 drives.** - is this a hard requirement or would similar speed (12Gbit/s) drives or throughput rates be considered.

A – refer to STMS/MPxIO and generic HA Clustered fileserver design.

15). Q - **Minimum of 425TB useable capacity hybrid storage pool, minimum data protection level of RAID6. SAS3 data drives and interconnects. Storage pool proposed must support independent read and write caches.** - Assuming the hybrid nature of this request mean that the storage pool must be SAS and SATA, SAS and SSD, or other. Is there an expect read write performance rate from each drive type or a blended throughput rate from the overall storage solution.

A – assume hybrid storage pool implies use of ZFS concepts; zpool containing SLOG, L2ARC, and capacity disk components.

16). Q - **Past performance** - Does the government require previous experience with a NASA program?

A - No

17). Q - Is there applications with respect to the video management or asset management system that should be consider for integration purposes, i.e API integration from the software to the archive system?

A - no

18). Q - Considering this storage will hold large video files will the government require streaming from this archive system direct to end users or will there be a middle layer system in place?

A – no requirement for streaming. Solution is a simple workgroup fileserver of unusual depth due to volume of existing content and new content creation rate.

19). Q - Does the government require simultaneous streams to multiple hosts without disruption?

A – yes, however client count is low (< 8).

20). Q - How many ports per controller are required?

A – no fixed requirement other than sufficient to meet other stated requirements (multipathing, no single point of failure, ...)

21). Q - Connectivity types? Are 16 & 8GB FC, 6GB SAS, and 10Gb/1Gb iSCSI required?

A – no

22). Q - Is there a sequential reads / writes performance metric the government is trying to meet?

A – yes. Typical sustained sequential read/writes of ~4Gbps

23). Q - Considering this is for archive storage, will there be a need to integrate tape as a medium at a later date to free space on this system?

A – future enhancements may include FC connections to existing SAN.

24). Q - Given that this system will have full redundancy so failures do not occur and data loss doesn't happen, is there an additional need for data protection or backups of this system? Will there be replication needs to a separate system?

A – solicitation is for this solution only. Solution will integrate with existing infrastructure for further data protection/backups/replication needs.